Long. of place of observation	$10^h\ 3^m\ 42^s$	East of Greenwich
Lat. of place of observation	$33°\ 36'\ 30''$	South

Remarks.

Where the difference of N.P.D. is not given it is to be understood that one of the objects crossed the ring near its centre. The stars *a*, *b*, are of the 7 mag., and *c* of the 7·8 mag. B.A.C. 5558 is double; the *following* star was employed in the comparisons of the 13th October. The following are the mean places of B.A.C. 5538 and 5583 from observations made at the Sydney Observatory.

B.A.C. 5538, January 1, 1859, R.A. $16^h\ 27^m\ 6^s·44$, N.P.D. $124°\ 57'\ 39''·4$ from six observations in 1859.

B.A.C. 5583, January 1, 1860, R.A. $16^h\ 34^m\ 3^s·41$, N.P.D. $130°\ 50'\ 49''·6$ from one observation in 1860.

Places of Comet II. 1862, *observed at Armagh.*

By N. M'N. Edmondson, Assistant at the Observatory.

(*Communicated by Dr. Robinson.*)

1862.	Greenwich M.T. h m s	R.A. h m s	s	N.P.D. ° ′ ″	″
Aug. 27	11 6 36·49	15 26 18·27	$+\varpi\times$0·05596	43 41 54·28	$-\varpi\times$0·52008
28	9 16 17·63	15 31 41·87	0·04292	48 52 52·70	0·39972
29	9 4 21·21	15 36 46·30	0·04231	54 41 45·17	0·46049
31	9 32 36·89	15 45 8·31	0·03666	66 38 39·70	0·63061
Sept. 1	8 52 44·77	15 48 33·28	0·03132	72 14 58·45	0·66010
7	8 44 41·06	16 3 10·20	0·03038	99 50 47·09	0·86420
8	8 36 46·11	16 4 52·93	0·03009	103 7 5·87	0·87828
9	8 32 25·68	16 6 59·92	$+\varpi\times$0·03019	105 57 15·46	$-\varpi\times$0·88794

	Comparison Stars.	Comparisons.	Assumed Places.
Aug. 27	Lalande 28208	5	Lalande.
28	52 Boötis	5	Armagh Catalogue.
29	P. xv. 148	6	R.A. from P., N.P.D. from Armagh.
31	Lalande 28875	4	Lalande.
Sept. 1	P. xv. 203	6	R.A. from Armagh, N.P.D. from P.
7	15 Scorpii	5	Ditto ditto B.A.C.
8	Lalande 29671	5	Lalande.
9	Argelander Zone 297, No. 76*	6	Argelander.

* I am indebted to Mr. Ridings, of Markree, for the name and places of this star. Its identity with the comparison star seems doubtful. The comet preceded the star in R.A. $4^s·25$, and was north of it $5'\ 42''·08$.

Results of the Meridional Observations of Small Planets, and an Occultation of a Star by the Moon; observed at the Royal Observatory, Greenwich, in the month of December, 1862.

(*Communicated by the Astronomer Royal.*)

Themis (24).

Mean Solar Time of Observation.		R.A. from Observation.	N.P.D. from Observation.
	h m s	h m s	° ′ ″
1862, Dec. 1	10 27 32·5	3 9 36·10	71 52 6·81
13	9 32 45·4	3 1 58·70	72 21 20·07

Urania (30).

Mean Solar Time of Observation.		R.A. from Observation.	N.P.D. from Observation.
	h m s	h m s	° ′ ″
1862, Dec. 1	13 13 7·1	5 55 37·90	63 44 12·28
10	12 28 9·1	5 46 1·55	63 51 29·48
11	12 23 5·2	5 44 53·37	63 52 41·11
13	12 12 56·2	5 42 35·81	63 55 9·49
23	11 22 17·2	5 31 14·04	64 12 10·92
29	10 52 29·7	5 25 0·97	64 24 51·72

All the observations of N.P.D. have been corrected for Refraction and Parallax.

Occultation of α Cancri by the Moon.

Observed on Dec. 10, by Mr. Criswick. The disappearance took place at the Moon's Bright Limb at $15^h\,54^m\,54^s{\cdot}8$, and the reappearance at the Dark Limb at $17^h\,4^m\,46^s{\cdot}9$ M.S.T.

Observations of Asia (67), *taken with the Equatoreal of the Liverpool Observatory.* By J. Hartnup, Esq.

	G.M.T	R.A. (67)	Log. $\frac{p}{P}$	N.P.D. (67)	Log. $\frac{q}{P}$	Star of Comp. B.A.C.
1862.	h m s	h m s		° ′ ″		
Dec. 10	9 50 43·4	3 34 14·84	−7·829	77 6 15·2	−9·8114	1241
10	10 20 37·7	3 34 13·76	−7·154	77 6 19·4	−9·8104	,,
10	10 50 32·0	3 34 12·51	+7·592	77 6 23·2	−9·8105	,,
11	10 23 55·2	3 33 28·76	..	77 9 15·0	−9·8108	,,
11	10 53 49·7	3 33 27·42	+7·727	77 9 17·5	−9·8114	,,
17	9 56 20·9	3 29 30·02	..	77 24 1·3	−9·8130	1087
17	10 11 18·4	3 29 29·39	+7·426	77 24 2·3	−9·8130	,,
17	10 26 16·2	3 29 29·02	+7·726	77 24 4·1	−9·8136	,,

The observations are corrected for refraction. The corrections to be applied for parallax in time and arc are represented by p and q. P is the equatoreal horizontal parallax.

The following are the assumed mean places of the stars of comparison for 1862, January 0:—

	R.A.	N.P.D.	Authority.
	h m s	o ′ ″	
B.A.C. 1241	3 53 2·34	77 54 9·45	Greenwich Observations.
,, 1087	3 23 15·49	77 32 20·39	,, ,,

Mr. Warren De La Rue exhibited at the January Meeting a photograph of the Moon, taken near the dichotomy, enlarged so as to correspond in size with the map published by Beer and Mädler, and called the attention of the Fellows to the great progress which has been already made in Photographic Selenography.

Mr. De La Rue stated that, when he first commenced to map the lunar surface, the only way of procedure possible in the then state of the photographic art was, after the original negative had been taken, to place it under the microscope, and make, with the aid of the camera lucida, an enlarged copy of such portions of it as might be required by hand. Latterly, however, a more direct method has been discovered, by means of which, as Mr. De La Rue pointed out to the Meeting, the magnificent photograph enlarged thirty-eight times from the original negative had been produced. In the first instance a positive on glass was obtained, nine inches in diameter, from the original negative of one inch in diameter; and at the second operation a series of negatives were procured on a scale of thirty-eight inches for the Moon's diameter.

Mr. De La Rue, while bearing full testimony to the valuable labours of MM. Beer and Mädler, pointed out that their map did not give a true representation of the lunar surface as a chart, it only *mapped* it, while the photograph does both; and, although the latter might not be quite so sharp in its outlines as might be wished, still one must be contented to lose something in exchange for the great magnification of the negative. The combination of favourable circumstances necessary for the production of a perfect photographic picture was then alluded to. Atmosphere, collodion, instrument, driving-clock, all must be perfect; and the very rare occasions on which this combination occurs may be judged of from the fact that of four hundred negatives taken by Mr. De La Rue during the last five years, about twenty only are capable of producing a perfectly sharp photographic record; the tremulous motion in the

image from atmospheric defects being the *main* cause of the difficulty.

Turning to another allied subject, the photographs of the Solar Eclipse, Mr. De La Rue referred to certain discrepancies (to which he had alluded in his Bakerian Lecture on the Total Solar Eclipse of 1860, read before the Royal Society), between the photographs taken by Father Secchi and his own, and stated that, on a recent visit to the Roman Observatory, he remarked a photograph differing considerably from those which have been distributed in this country, by the kindness of Señor Aguilar, who had accompanied Father Secchi. Father Secchi's copy bore a very much greater resemblance to Mr. De La Rue's than these latter; and, upon inquiry, he found that after the first few positives had been taken from the original negatives, they had been subjected to a process technically called "strengthening," which, in this instance, had completely blotted out all the minute detail at first recorded.

While Mr. De La Rue was in Rome, Father Secchi's copy of the first place of totality was enlarged, and he brought back with him to England a negative corresponding in size with those taken with the Kew Heliograph by himself; and he has found, on tracing both and comparing the tracings, that the similarity is complete, with the exception that two luminous prominences are seen in Father Secchi's photograph which were not visible from Mr. De La Rue's station; that is, the only discrepancies between the two photographs taken at the two stations could be explained by the greater covering of the Sun in the one or other direction by the parallax of the Moon, dependent on the observers' positions, with respect to the central line of the eclipse. J. N. L.

Memorie Astronomiche. Del Prof. Donati. (Published in the Annals of the Museum at Florence, 1862.)

(*Abstract by S. M. Drach, Esq.*)

The first memoir, dated August 1860, is on the Striæ of Stellar Spectra. After quoting Fraunhofer, in Schumacher's *Astron. Abhand.*, Part ii., 1823, and in Gilbert's *Annalen der Physik* (vol. lxxiv., 1823), on the spectra of stellar and planetary light rays, the author states that he used a large burning lens kept in the Museum since 1690, and whereon Targioni, Averani, and Sir H. Davy had experimented. This lens has a diameter of 0·41 metres, and a focal distance of 1·58 metres (15 and $62\frac{1}{2}$ inches). The lens was mounted parallactically on a movable stand: a piece with a fine slit was placed a short distance within the focus of the lens, through which the stellar rays passed. Within this lens-tube